The Nature, Health & Design Lab - research on nature qualities.

Stigsdotter, Ulrika K.; Refshauge, Anne Dahl

Publication date:
2014

Document version
Early version, also known as pre-print

A study on the healing effect of Korean forestry. Lee, J., Park, S., Jeong, M., Yoo, R., Kim, J. (*Korea Forest Research Institute, Republic of Korea; jeong86@forest.go.kr; sjpark@forest.go.kr; miaejeong630@gmail.com; cham0505@forest.go.kr; jjkim@forest.go.kr*).

In recent Korean society, the number of healing industries, which connect the Lifestyles of Health and Sustainability (LOHAS) with well-being, is rapidly increasing and the major activities in forests have also been changed to the walking on the forest roads or the real healing through forests, sublating those activities like simple climbing for achievement purpose. In order to respond to the people's demand for forests, the Korea Forest Service is attempting the scientific approach to real healing, namely, the psychological and physiological healing effects of forests. The research on the healing effect of forests started in earnest in 2007 and it is still continuing in 2013. In this study, the scientific results of seven years on the healing effects of forests will be analyzed and forest healing in Korea will be introduced. The forest healing in Korea imitated the forest therapy of Japan at the early stage of its research, but currently, Korea's own direction of forest healing has been established and the relevant research is being conducted based on continuous evidence.

Forests for wood production and human wellbeing – what are the trade-offs in long-term forest management planning? Nordström, I., Lundell, Y., Stoltz, J., Skärbäck, E., van den Bosch, M., Grahn, P., Dolling, A. (*Swedish University of Agricultural Sciences, Sweden; eva-maria.nordstrom@slu.se; Ylva.Lundell@slu.se; jonst309@gmail.com; Erik.Skarback@slu.se; Matilda.Van.Den.Bosch@slu.se; Patrik.Grahn@slu.se; Ann.Dolling@slu.se*).

Social values of forests are increasingly recognized as important objectives in forest management planning. For instance, forests contribute to human health and wellbeing by providing a suitable environment for recreation and rehabilitation. However, it remains a challenge to define and measure these values in terms of forest variables and to incorporate them into forest planning. The objective of this study is to quantify rehabilitation forest characteristics and analyze trade-offs between wood production and rehabilitation forests. The study builds on previous studies of preferences for different forest types among participants in a stress rehabilitation program. For three forest estates in northern, middle and southern Sweden, correlation analysis indicated that the five most important stand-level variables were age, stems/ha, height, diameter and standing volume. Threshold values were set for these variables as well as spatial criteria to define rehabilitation forest. The Heureka decision support system was used to analyze the relation between maintaining different shares of rehabilitation forest and the loss in net present value (NPV) for forestry over a 100 year period. Preliminary results show that 15–25% can be maintained as rehabilitation forest without considerable decrease in NPV. Age and spatial restrictions seems to be important limiting factors.

The Nature, Health & Design Lab – research on nature qualities. Stigsdotter, U., Refshauge, A (*University of Copenhagen, Denmark; uks@life.ku.dk; adre@ign.ku.dk*).

An increasing amount of research suggests that nature is a resource to human health. Studies indicate health benefits at cellular, individual, and population level, and that natural environments have positive impacts in three main ways by encouraging physical activity and social contact, and by providing psychological and physiological restoration. Evidence further suggests that there may be synergies between the three. There is sufficient evidence to support the assertion that natural environments promote health and can act as supportive environments for therapies. This is often stated in Danish health and nature policies. But how can research results be used in practice? Our hypothesis is that everything marked green on a city map cannot promote health or serve as a setting for therapies *per se*. More knowledge concerning nature qualities and evidence-based health design is needed. Therefore the University of Copenhagen has established the Nature, Health & Design Laboratory that consists of two settings; the Health Forest (health promotion), and the Healing Forest Garden Nacadia (treatment of stress). Different nature characteristics' impact on health is being tested using both physiological tests and psychological, validated assessments. In a randomized clinical trial the effect of nature-based therapy in Nacadia and the impact of nature experiences are being studied. Preliminary results will be presented.

The influence of urban nature environments on stress relief — a field experiment. Tyrväinen, L., Ojala, A. (*Finnish Forest Research Institute, Finland; liisa.tyrvainen@metla.fi; ann.ojala@metla.fi*), Korpela, K. (*University of Tampere, Finland; kalevi.korpela@uta.fi*), Lanki, T. (*National Institute for Health and Welfare, Finland; timo.lanki@thl.fi*).

More evidence and systematic research is needed on the psychological and physiological health effects of urban nature areas. This presentation is about the psychological and physiological stress reducing effects of different urban green areas based on an experimental study. We chose three different experimental sites within Helsinki city, the capital of Finland. The study sites were a constructed urban park, large urban woodland and the city centre of Helsinki. We used several psychological and physiological measures for measuring stress relief such as the Restorative Outcome Scale and Perceived Restorativeness Scale physiological measures including salivary cortisol concentration, blood pressure and heart rate variability. The experiment consisted of a 15-minutes viewing session which was followed by a 30-minute walking session on a given course. The final sample consisted of 77 healthy, non-smoking participants between 30–61 years of age. The data were analysed in SPSS, using repeated-measure ANOVA. Our results showed that there was a clear difference between the city centre and urban nature areas. The participants felt more restored after visiting green areas, compared to the city centre. The differences between the urban green areas were smaller. However, the urban woodland had somewhat more restorative qualities than urban park.

Long-term monitoring of health effects of urban forests in Hangzhou, China. Ye, B. (*Chinese Academy of Forestry, China; yb70@caf.ac.cn*), Zhang, T. (*Forestry Bureau of Guangan City, China, China; zhangyanli_qinyu@163.com*), Zhang, Z. (*Beijing Forestry University, China; zzy100083@163.com*), He, Q. (*Hangzhou Forestry Academy, China; heqijiang@21cn.com*).

Various researchers have shown that urban forests can help to improve the health of urban residents. However, it is still very difficult to quantify the magnitude of the health benefits and use the information to guide the planting and maintenance of urban forests. In this study, a long-term monitoring approach was developed to track the dynamic of the health benefit of urban forests. Seven environmental variables that are closely associated with urban forests were selected as measurable indexes of health effects that urban forests can produce. Their spatial-temporal variations in a sub-tropical city in China were monitored by using six automated monitoring platforms. In this report, the rationale of the monitoring protocol, set-up of the platform, and the initial results are reported. Some recommendations on enhancing the health effects of the urban forest are suggested.